

## Reviews and Bibliographical Notices.

### I.—DISEASES OF THE NERVOUS SYSTEM.

KRANKHEITEN DES NERVEN SYSTEMS. ZWEITE HAEUFTE. VON Prof. A. Eulenberg, in Greifswald. Prof. H. Nothnagel, in Jena; Dr. J. Bauer, in Muenchen; Prof. H. v. Ziemssen, in Muenchen, and Prof. F. Jolly, in Strassburg. Leipzig. 1875. P. 600. (*Handbook of Diseases of the Nervous System, etc.*)

[Continued from the April No.]

The subject of *unilateral progressive facial atrophy*, is made the subject of a special paper, in the present number of the JOURNAL, and in which we have taken occasion to express our views as to its pathology, at least, in part. For this reason, we will pass by in the main, the very interesting article on this subject, by Dr. Eulenberg, in the volume before us. A brief history of the disease is given, and a rather full bibliography. In the discussion as to the cause of the disease, no satisfactory information is to be given. Among the earlier symptoms are, local discoloration of the skin—usually connected with trophic change—change in the color or physical conditions of the hair, its abundance and rate of growth, and manifest diminution in size or fullness of the one, as compared with the other side of the face. Beside these symptoms, there is a diminution in secretion from the skin, and in certain cases, at least, comparative tardiness in the healing of abrasions, wounds, or other lesions, having their seat in the affected part. The tonus of the small muscular vessels would seem to be increased; and hence, the blood supply diminished. All the tissues of the side of the face would seem to be involved; at least in certain cases, but not equally so. The areolar tissue and its contained fat, perhaps suffer earliest, though by no means exclusively; for the muscular and bony are involved, in many cases. The tissues do not seem to be degenerated, or do not usually lose their proper structure. They diminish rather gradually in volume.

The question of importance, is as to the seat and nature of the morbid process, by which this diminution in volume is accomplished. Is it by reason of disuse, or a diminished blood supply, or by a change in the action of the nerves of the part? If the latter, what nerves are involved, and in what manner?

Dr. Eulenberg decides clearly in favor of the neurotic origin of the affection, and would seem to be inclined to adopt the view of Baerwinkel, that its seat is in the ganglion of Gasser of the trigeminus, or of limiting the disease, at least, to the sphere of the fifth. In this opinion we would provisionally, but cordially agree. The discussion, in the analysis of the phenomena of the disease, is marked by the same wise, critical spirit, so manifest in other valuable writings of our author. Dr. Eulenberg accepts, in general, the doctrine now happily so prevalent, that the nervous system exercises a pronounced control over the intimate processes of nutrition.

The recognition of this doctrine, we regard as a circumstance greatly to be desired, and we predict that the time is soon coming when no enlightened physiologist, will refuse on rational grounds to accept it.

But it will be neither necessary nor profitable for us to enter upon a closer discussion of this subject, since as already said, it has been made the subject of extended remark in an article in the first department of this number of the JOURNAL. To that article we would refer the reader, for a fuller discussion.

The article on *Basedow's Disease* (Graves disease, exophthalmic goitre, cachexia exophthalmica, struma exophthalmica—tachycardia strumosa exophthalmica, etc.) also from Dr. Eulenberg, does not differ materially from his earlier articles on the same subject, in his *Pathologie des sympathicus, Functionellen nerven-krankheiten, etc.*) The three cardinal symptoms of the disease, as is now well known, are palpitations of the heart, and increase in rapidity of the pulse, enlargement of the thyroid gland, and unnatural prominence of the eyes. These morbid conditions may appear in various order, or proportions, in relation to each other, and with very different degrees of rapidity.

The cause, or causes of the disease, are thus far unknown, a confession which must be made however, in relation to most other diseases as well as the present one.

Sex and period of life, are not without influence. It occurs mostly in the female sex, and during the middle period in life. It would also appear to be, in rare cases, hereditary, and presents itself usually in subjects having a "neurotic temperament."

The description of symptoms and course is excellent, but inasmuch as full accounts of the phenomena are accessible to our readers, we will confine attention mainly to its pathology. The nature and relations, of the strumous features of the disease are first discussed. The struma, often is not manifested until after the appearance of the exophthalmus, and the cardiac symptoms. This fact would seem to show that the strumous phase of the affection, does not stand in a casual relation to its other characteristic phenomena.

The strumous symptoms (glandular enlargements) are shown to be due in no small degree, to dilatation of the arteries and

veins of the glands, and depend therefore on disease of the vessels or their nerves, more especially the latter.

That the vascular phenomena, are not due to the temporary diminution in vascular tonus, such as follows in certain parts in sections of the cervical sympathetic, is shown in the fact, that similar symptoms cannot be produced in the lower animals, when the sympathetic has been divided, or, in those rare cases in which it has been accidentally divided in man. They have been apparently produced, however, experimentally in the thyroid gland of lower animals by Boddaert, by tying the external and internal jugular, and the inferior thyroid veins. Dr. Eulenberg seems favorably inclined to the view of Benedict, which is to the effect, that instead of a paralysis of the vaso-motor nerves of the vessels in question, they are in a state of excitation; at any rate, those hypothetical vascular nerves, which have been called "vaso-dilators," such as belong to the erectile tissue (*nervi erigentes*, of Eckhard). Benedict's view required, at least hypothetically, a layer of longitudinal muscular cells, in the coats of the vessels, by shortening of which cells, a corresponding enlargement of the vessel in diameter was produced, and the histological investigations of Moeller, would seem to have confirmed the conjectures of Benedict. In this case then, the glandular enlargement, would seem to be at least partly due, to enlargement of their muscular vessels, which depend, in their turn, for their enlargement, on irritative disease of the related vaso-motor nervous system. This view as we may take occasion to show, is in the main confirmed by, or at least not inconsistent with, the pathological anatomy findings, for in several instances, unmistakable disease of the cervical sympathetic nerves and related ganglia, has been found to exist. But Benedict, would not place the true seat of the disease in the extra-spinal portion of the sympathetic, but in the medulla, or its vaso-motor centres, from which point the morbid action proceeds, that affects the vessels, through the medium of the peripheral vaso-motor (sympathetic) nerves.

Instead then of the disorders of vascular action, which characterize Basedow's disease, depending on venous pressure by the enlarged (strumous) gland, the reverse seems the more probable, and the latter, as we have just seen with considerable probability, depend on disease (possibly irritative) of the relative vaso-motor (vaso-dilator) nerves. We have entered into the consideration of this point more fully than the author himself, for we think one of the most important to be noticed, and to have practical relations to morbid conditions different in seat and apparently kind, from those involved in the disease now under discussion.

Dr. Eulenberg next passed to a consideration of the *exophthalmus*—the extrusion of the eyeballs beyond their ordinary orbital limits.

This is due, he thinks, to venous hyperæmia of the orbit back of the eyeball, and perhaps to an unusual development of the

post ocular, areolar and fatty tissues. There can be no doubt, but that the hyperæmia mentioned, plays a conspicuous part in the exophthalmus, nor that the same, or a similar explanation to the one found true for the enlarged vessels of the glands, already noticed, would be found adequate to explain the vascular disorder in the orbit. The proofs that the required degree of exophthalmus may be produced by the hyperæmia, are abundant, and are briefly, but skillfully arrayed by Dr. Eulenberg. It is sufficient for our present purpose, to say they are convincing. The view that the exophthalmus depends on tetanic contraction of the muscular fibres, discovered by Mueller, and which extend from the eyelids in the direction of the ball, is wisely rejected. It is difficult for us to see, how any one could ever have thoughtfully adopted this view. We do not think its discussion would be useful to our readers. A consideration, then, of the exophthalmus, in Basedow's disease, leads us in a regressive order to the same morbid conditions as were found to underlie its so-called strumous phenomena. We repeat, "so-called," for it is our opinion that the glandular enlargements, in this disease, are not "strumous" in the ordinary sense of that word.

We come now to the third and last cardinal symptom; viz., palpitation of the heart, and acceleration of the pulse. The increased cardiac action may depend on either irritation of the extrinsic cardiac nerves, or on some intrinsic change in the nervous, or blood supplies of that organ. It has been held, indeed (Friedreich), that the increased cardiac action depends on increased blood supply to the muscular structure, and automatic nervous apparatus of the heart, caused by irritative disease of the cervical sympathetic, or cardiac vaso-motor nerves. In respect to the nature and mode of production of the phenomena, Dr. Eulenberg enters into a rather lengthy, and critical discussion, without arriving at any positive conclusion.

But, for our own part, it appears that the cardiac and circulatory phenomena may be explained in a manner agreeable to the conditions thought to underlie the strumous and ocular phases of the disorder.

Basedow's disease, it seems probable to us, consists in irritation, and hence morbid action in that portion of the vaso-motor system, which is distributed more particularly to certain vascular areas about the head and neck. It is not limited to the extra spinal portion of the vaso-motor system, but affects as well, and more essentially, the related centres in the cervical portion of the spinal cord, and perhaps upper dorsal as well, instead of having as a central seat, the medulla, as Benedict appears to hold. If its seat were in the medulla, there is some reason for supposing more general vaso-motor disturbances would result, and especially intracranial vaso-motor disorders, which seem to be, in a great measure, absent in this disease. For these, and other reasons equally satisfactory, we have been

led to fix its spinal centre, or centres, in the part already named. This view agrees with experimental investigations. The accelerator nerves of the heart take their origin from the upper dorsal and lower cervical portions of the sympathetic, and hence, are anatomically and physiologically related to the portion of the cord supposed to be the seat of morbid action in Basedow's disease. If irritated, or stimulated to an unnatural degree, experimentally, they cause increased rapidity in the action of the heart, and their irregular action may well be the cause of the cardiac irregularities observed in the disease under consideration.

It seems possible, then, to trace, at least in part, the three cardinal symptoms of Basedow's disease back to the vaso-motor centres in the upper dorsal, and cervical portions of the spinal cord, and the related peripheral portions of the vaso-motor nerves. As to the real nature, cause, and precise limits of the nervous lesion, but little is certainly known.

We have carried this account of the pathology of Basedow's disease farther than Dr. Eulenberg has done, because we deem the subject important, and one upon which a much clearer light may be thrown, than has been up to this hour.

But we cannot enter farther into a discussion of its phenomena at present. More reliance appears to be placed on electrical treatment than any other, the constant current being preferred. "Galvanization of the sympathetic" is recommended by Dr. Eulenberg. As respects the choice of currents, we have tried thoroughly the induced current, and have been quite as well pleased with its action as with the constant current, though we have employed both. Our method has been the prolonged use of a current of moderate strength, (induced) placing the patient's foot on one electrode, while the ordinary sponge electrode, or the hand, has been employed over the presumed seat of the disease, for 15 to 20 minutes every day or so. The results have been uniformly excellent, and with but little besides, in the way of medication, except strict hygienic regulations.

Progressive muscular atrophy, is made the subject of a very extended article. But in an earlier volume, we entered on a comparatively full and critical survey of the subject in a review of the remarkable monograph (*Progressive muskeltrophie*) of Friedreich of Heidelberg. This will render an extended notice of the present work for our readers unnecessary.

The chief phenomena of the disease are formulated by Dr. Eulenberg as follows: "By progressive muscular atrophy is to be understood a complex of symptoms, of which the chief phenomena are a gradually occurring, progressive atrophy of the voluntary muscles, the phenomena of which occur in a certain order, involving a more or less considerable part of the motor apparatus." The nature of the affection is described briefly in

the following terms: "It is characterized anatomically, finally by the nature of the pathological changes in the muscles; viz., *a chronic myositis, with proliferation of the interstitial tissues, with secondary destruction of the muscular fibres, and a final termination in fibrous degeneration*—while to the contrary the constitution and interpretation of the concomitant anatomical changes in the nervous system, will not permit us to class them under the same head."

As is well known to most readers, there are two principal hypotheses as to the nature of the disease under consideration. On the one hand it has been held, and yet is by certain prominent observers, that the disease has no necessary relation to the nervous system, that the disease of the muscles often arises before disease of the related nerves, and that if the former become affected, apparently in consequence of disease of the latter, that is by reason of a descending neuritis, or some similar morbid process, which travels along the motor nerves to the related muscles, but does not imply a production of muscular lesion, by what is called "nervous influence."

On the other hand is the hypothesis, that the muscular lesion may be produced as a consequence of disease of the motor nerves, or rather of the cells from which they proceed. It is caused in such cases, by an "influence" which passes from the seat of lesion in the cord or elsewhere, along the motor nerves to the muscular fibres, and in such way as not to imply of necessity demonstrable disease of the motor nerve fibres themselves. Each of these hypotheses has eminent supporters.

Dr. Eulenberg enters into a brief but exceedingly judicious and clear discussion of the two hypotheses named above, and decides clearly in favor of the neuropathic, as against the myopathic theory. He especially discusses the views of Friedrich, as set forth in his remarkable monograph\* and successfully combats them, at every vital point, so it seems to us. We do not see how it is possible in full view of the facts of the case, to deny that the muscular is consecutive to the nervous lesion, and not only consecutive to, but caused by it.

In the chapter on *Pseudo-muscular hypertrophy*, there is a critical comparison of this affection, with *progressive muscular atrophy*, and in conclusion the statement of Friedrich is adopted, which is that "pseudo hypertrophy of the muscles, is only a modified form of progressive muscular atrophy, the difference between the two depending on a difference in intensity in the disposition to disease, and certain peculiarities of childhood age, to which pseudo-muscular hypertrophy, is chiefly limited." The pathology of the two affections is therefore essentially identical.

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\**Ueber progressive muskeltrophie ueber wahre und falsche muskelhypertrophie.* Von N. Friedrich, Prof. der med. in Heidelberg. Quarto S. 358, Berlin. Reviewed in October number of volume I. of this JOURNAL.

In respect to *true muscular hypertrophy*, the discussion is short, for the materials on which a truly scientific opinion could alone be based, are as yet, very scanty. The principal cases thus far recorded, are those of Auerbach, 1; Berger, 2; Benedikt, 3; and Friedreich, 4.

No satisfactory judgment as to the true pathology of the disease has been arrived at thus far. By some, it has been regarded as an anomalous first stage of false hypertrophy, but this has been denied by Auerbach and Berger. But for our own part, we cannot look upon it, in the light of present knowledge, except as one form of muscular disease, having its origin in morbid trophic action of related nerves, and hence, at bottom, its pathology is at one with the other forms of muscular disease that have been previously considered.

As to the treatment of these rare affections, Dr. Eulenberg has no light not already given to the profession through other channels.

The chapter on neurotrophic muscular affections closes this memoir of Dr. Eulenberg, which we strongly commend to our readers as one of the best on its subject in the whole range of medical literature.

The subject of epilepsy is treated by Nothnagel, of Jena; his article occupying a little over one hundred pages. The author does not attempt a short, comprehensive definition of the disorder, holding it to be impossible, from the standpoint of our present knowledge. The term epilepsy, he says, "is, at present, only a clinico-symptomatological expression, like the name apoplexy, not a definite statement of an anatomical lesion, like the phrase cerebral hemorrhage, for example." In the somewhat detailed introduction, he discusses at length the various forms of convulsive disorder, that have been included under this head. He rejects entirely the so-called symptomatic and toxæmic epilepsies — the epileptiform attacks accompanying other well-defined affections, or conditions of blood poisoning. On the other hand, he holds to the term "reflex epilepsy," including a class of cases which Russell Reynolds, for instance, would refer simply to the general class of non epileptoid convulsions. Nothnagel would even extend the signification of the term, and include under it, not only epilepsies starting from an irritation of a peripheral nerve, but also those arising from irritations of the spinal cord, or the brain itself. He proposes, as a substitute, the name "secondary epilepsy" for all such cases, being less open to the objection of confounding mere reflex convulsions,

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1. *Ein fall von wahren muskelhypertrophie* Virchow's Archiv. Bd. 53. S. 234 and 397.

2. *Deutsches archiv. f. klin med* Bd. IX S. 363, 1872.

3. *Wiener med. Presse.* No. 9, 1872. Vgl. auch *Elektrotherapie und Nervenpathologie* P. 186.

4. *Friedreich u. Progress. Muskelatrophie, etc.* Berlin, 1873.

like, for example, the spasms of dentition in children, with true epilepsy. The so-called spinal epilepsy, in the sense in which the term is often used to designate clonic and tonic convulsive attacks, resulting from spinal disorder, without any indication of psychic trouble, is, in our opinion, very properly rejected by the author.

The pathology and pathogenesis of epilepsy are incidentally discussed in this chapter, in connection with the history of the experimental investigations by Brown-Sequard, Kussmaul and Tenner, Hitzig, the author himself, and others, and is more fully treated in a later part of the article. The author locates the seat of the irritation in the medulla and the pons, the epileptic seizures due to the cortical injuries, such as have been described by Hitzig, Ferrier, and others, being of his class of secondary, or reflex epilepsies. All the phenomena, the convulsions, the loss of consciousness, etc., are explainable by the theory that the anatomical seat of the disease is in the medulla and pons, where are located the centres for convulsions, and more especially the vaso-motor centres, producing alterations in the cerebral circulation. Still Nothnagel is not inclined to attribute all the importance to the vaso-motor centres, that has been given them by many authors. He does not consider anaemia of the pons as necessarily preceding the convulsions, but thinks, rather, that the convulsive and the vaso-motor centres act independently and simultaneously in the typical attack. To support this view, he mentions the less typical forms and the *petit mal*, in which the convulsions do not appear at all, and the rarer instances, in which he admits, convulsions occur without unconsciousness, as being explainable only with its admission. In this he seems to be a little inconsistent with himself, since early in his remarks, he speaks of the necessity of using only typical cases, in studying some points of the pathology of epilepsy; and states that, neglecting this precaution, we fall at once into error.

For the symptoms of the later stage of the attack itself, Dr. Nothnagel, proposes the following explanation. He says: "When a patient is observed in the so-called second stage of the attack with the dilated veins of the head and neck, the noticeable cyanosis of the face, the protruding orbits, the phenomena do not indicate a cerebral anaemia, but rather every thing shows a marked intra-cranial venous hyperaemia, the result of the convulsive contraction of the cervical muscles. The excess of carbonic acid in the blood of the cerebral vessels is still further increased by the seriously impeded respiration. \* \* \* Hence the conclusion seems justified, that in the further course of the attack, unconsciousness and convulsions are produced and kept up through venous hyperaemia."

As to the immediate cause of the attack, Nothnagel holds that in some cases it is due to an external irritation or a psychic im-



pression, advancing respectively from the periphery or the Cortex, but in other cases no such incitation can be shown, and he quotes here Schroeder Van der Kolk's comparison to the spark of a charged Leyden jar. The theory of "discharging lesions" of Dr. Hughlings Jackson, so familiar to all English speaking medical men, and which is at once suggested by this comparison, is, singularly enough, not once alluded to by our author in this connection, nor are Dr. Hughlings Jackson's papers mentioned in the bibliography of the subject given at its beginning. When these papers have made so much of a sensation amongst neurologists and have even caused one so distinguished as Charcot to propose the name "Jacksonian epilepsy" for a type of the disease, this looks like a strange oversight, and indicates a certain amount of literary indolence. He could hardly have been ignorant of Dr. Jackson's theories, at least it seems too much to assume that he was,—the omission is certainly a blemish to what should be, in a sense, an exhaustive memoir of the disease.

The aura, Nothnagel very justly considers as a purely central phenomenon, and considers and refutes the objections to this view. Finally in his discussion of the pathology of this affection he alludes to the term "*epilepsia vasomotoria*" which has been proposed for certain forms in which the vaso-motor symptoms are more pronounced than usual. He objects to the term on the general ground that vaso-motor phenomena are characteristic of the disorder, and, that their presence in greater or less degree is not a proper distinction on which to found a species or variety of the affection, any more than the presence of an aura or the greater or less predominance of motor symptoms.

Those cases of epilepsy with pronounced vaso-motor spasm, he admits, are significant as regards the nature of the attack since they support the theory of cerebral anaemia, which he does not himself altogether accept. In this connection, the author mentions the affection that he and Landois had described under the name of "*angina pectoris vasomotoria*" which is undoubtedly of vaso-motor origin, and which in some cases graduated into well marked epileptoid attacks.

Taken altogether, Nothnagel's views of the pathology of epilepsy are perhaps more clearly stated in other parts of his writings, to which he refers, than they are in this chapter. They may be stated, in short, as follows: the anatomical seat of the disorder is in the medulla and pons. The primary unconsciousness is probably due to cerebral anæmia; later, it and the accompanying convulsions are caused by venous hyperæmia, and the consequent vitiation of the quality of the cerebral blood supply. The excitations of the convulsive and the vaso-motor centres in the pons and medulla, are independent of each other, and may either one occur alone. The aura is a purely central phenomenon. The starting point of the attack is sometimes a peripheral or a central irritation, but oftener, per-

haps, the cause that acts on the over-irritable centres is unknown.

In regard to treatment, Nothnagel reviews nearly everything that has been proposed or tested in this disorder, the treatment or removal of the cause, regulation of the diet, water cures, electricity, counter-irritation, and all the various medicinal agents that have from time to time been recommended or employed. He speaks highly of one agent that we think is little used, at least intelligently, in this country—that is cold water. Judiciously applied, he has seen very good results follow its use in his own practice, but he guards his recommendation with several cautions that will probably be complied with only with difficulty in this country. In the first place, domestic treatment at the patient's house will not suffice; it must be attempted at a regular water cure, with all the appliances, and under the care of a thoroughly competent physician, this last requisite being especially important. A contra-indication to this treatment would be any very decided grade of anaemia in the patient.

Concerning the rest of his remarks on treatment, there is little for us to say; they agree, for the most part, with the generally received opinions on the subject. The diet regulation, to which some attention has recently been called, is mentioned; but the author rather recommends no general rule, except that of regarding the needs and idiosyncracies of each case and condition, laying in this, as in other matters of treatment, much stress upon individuality.

The article on Chorea is by Prof. v. Ziemssen, the editor of the present Hand-book. It occupies a little over fifty pages, the greater portion of which is taken up with a discussion of the pathology, including an analysis of the symptoms of this affection. The author begins his subject with a historical introduction, in which, incidentally, he expresses his opinion that the so-called Chorea major should be stricken from the nosological list as a separate disease. "It is not a disease *sui generis*," he says, "but the expression of a true psychosis, or cerebral affection on the one side, and on the other of hysteria, and in part simulation." He gives a brief history of five cases of chorea major, so called, due to hysteria, cerebral tumor, or simulation. As this variety of the disease has never been much recognized in this country, we doubt not he will find few to oppose his recommendation.

Inasmuch as a definition of chorea is not always attempted by authors, we will reproduce that offered by v. Ziemssen. He says: "We understand under the name chorea, a neurosis, the seat of which, as it appears, may be sometimes in the brain, sometimes in the general nervous system, and which is characterized by continuous, partly spontaneous, partly voluntary, unco-ordinated muscular contractions, taking place almost exclusively

in the waking condition, and accompanied by a more or less well developed psychic disturbance."

In some respects this definition, or rather description, is as satisfactory as we could expect with our present knowledge, but it has its objections. There appears to us to be hardly any more doubt that the peculiar seat of the alteration in chorea is cerebral, than that such is the case in ordinary hemiplegia. We are very far from partaking in the opinion held by Hammond, that there are two species of this disorder, one cerebral, and the other spinal; if the latter exists, it is not chorea as we understand it. It is highly probable that the spinal cord is more or less involved, but the primary and predominant lesion is in the brain.

Therefore we object to the indefiniteness of our author's definition, when he says the seat of the trouble is "sometimes in the brain, sometimes in the general nervous system." It would imply that there might be a diffused lesion as, indeed, there probably sometimes is, but without any predominance of the trouble in the cerebrum. Without, perhaps, being a positively erroneous statement, it is very far from conveying any adequate idea of the facts of the case, and it seems to us slipshod and careless. Moreover, it is hardly in consonance with Ziemssen's own statements made further on, when giving a summary of the anatomical investigations by all the authors who have published the result of necropsies,—Broadbent, Tuckwell, Romberg, Elischer, Golgi, Rokitsansky, Steiner, Meynert and others, the clinical observations of Charcot and Weir Mitchell on hemichorea, and the experimental investigations by Chauveau, Legros and Onimus, Carville, and Bert, on choreic dogs. We cannot, perhaps, do better than quote a paragraph or two from the author himself, in which he states conclusions with which we can, in the main, agree, and which do not correspond exactly with the definitions given above. After mentioning in detail all the researches we have alluded to, he continues as follows:

"That the cerebrum, and especially the great basal ganglia, are the principal seat of the alterations in chorea, the facts just stated leave scarcely any doubt. Not only do the results of anatomic-histological investigations indicate this, but also clinical observations. Of special importance is the frequency of unilateral character of the choreic symptoms, sometimes with cutaneous anaesthesia, and the transformation—though rarely—of hemichorea into hemiplegia; and on the other hand, the development of hemichorea from unilateral paralysis, (Charcot, Foot, Weir Mitchell, Hughlings Jackson); besides this, the presence of unilateral facial paralysis with the characteristics of being of cerebral origin, simultaneously, and on the same side with the hemichorea and disappearing with it (Broadbent), the frequency of the coincidence of chorea and emotional and intellectual disturbances in all degrees, from the slightest psychic disorder to the high-

est grade of mania and of paralytic dementia, the development of chorea in consequence of inflammatory processes within the cranium (encephalitis, meningitis, tumours).

"In opposition to these facts, we cannot offer, as of sufficient weight, the experiments of Chauveau, Carville, Bert, Legros, and Onimus, which go to show that the choreic alterations are located in the cord, and not in the brain. These experiments, as it seems to us, only make it probable that in choreic dogs the spinal cord, and especially the gray matter of the posterior cornua, plays an important part in the production of the symptoms; but they do not show that the brain is not also implicated, and that the conditions are exactly the same in man. The numerous autopsies, also, in which softening of the cervical cord, or hyperaemia of the cord in general, and its membranes was found, and the separate cases in which embolic processes were detected in the cervical cord, (Tuckwell,) and interstitial nuclear and connective tissue proliferation, (Rokitansky, Steiner, Meynert, Elischer) were found, make it very probable that the cord also has its *role* in chorea in the human species. How frequent are these alterations proportionately to those of the brain, will have to be determined by more careful pathologico-histological investigations of the central nervous organs, with a richer supply of material. The same is true of the alterations of peripheral nerves, such as were found by Elischer. It will be the task of those investigators, to whom opportunities for autopsies of choreic subjects occur to examine for the alterations of the nerves which Elischer describes."

We have no comment to make on the above passage, except to repeat our opinion, that these views of the author should have modified, to some extent at least, his definition of the disease.

Of course, the gravity of the lesions in individual cases of chorea, must be very different. In slight and ordinary cases they must be only transient and separable; the opportunity for autopsies of course is only afforded by cases of extraordinary severity.

The question of the cause of these lesions—the pathogenesis of the disease, is briefly discussed by the author, and the principal points he makes may be stated as follows:

The inciting cause of chorea, Ziemssen holds is in many cases of rheumatic origin. The proofs of this are, the frequency of the co-existence of chorea with cardiac valvular vegetations, and the anatomical demonstration of embolisms in the cerebral vessels, especially those of the thalamus and corpus striatum. Still, we cannot lay it down as a universal rule that chorea is caused in this manner, nor can we state positively always the connection between the endocardial troubles and the affection, or whether both may not be due to the same unknown cause.

As regards the pathogenesis of the so-called reflex choreas, those due to uterine irritation, scars, etc., questions of another

kind arise. The author is inclined to consider this as an exactly parallel case with the so-called reflex paralysis, with the exception that the obscurity which hung over the latter has been largely swept away by the researches of the last ten years, by Leyden, Gull, Kussmaul, Klemm, and others, who have demonstrated the occurrence of neuritic processes, either continuous or interrupted, to account for many of these cases. In like manner he is inclined to use the results of the investigations of Elischer, already alluded to in the passage quoted, to account for the occurrence of reflex chorea.

If we reject reflex paralysis, except as due to the propagation of a neuritic or inflammatory process along nervous tracks, then we are perhaps in the same situation as regards chorea, which is likewise dependent on an actual anatomical alteration. But unless we make an extreme extension of the theory of neuritis migrans, and consider many of these cases to be due to an irritative process which makes no appreciable trace on the nerve tracks between the periphery and the centre, this view seems to us hardly tenable. The fact that neuritic changes take place in fatal cases of chorea, hardly proves that they occur in the usual form of the disease which is generally so readily amenable to treatment. If the author includes under the term reflex chorea, those cases which seem to be dependent on a local irritation, and admits the transmission of this irritation, merely as such, to the centres as a probable cause, we can so far agree with him, but we would not restrict the origin of even these cases to this alone. The processes he invokes to account for those cases which arise from shock, or mental or emotional impressions—nutritive changes caused by an action on the vaso-motor centres—may also come into play here.

In the remarks on treatment, there is little to notice, except the discouragement of the strychnia treatment recommended by Trousseau, and among recent authors, by Hammond; and the lack of any mention of the method of application of ether spray, first proposed by Lubilski, and the efficaciousness of which has been often demonstrated in practice by physicians. Among special remedies, arsenic seems to meet with most favor in this memoir.

As to the other memoirs in the present volume, we cannot afford the space in our present number, for an adequate review. At sometime in the near future, we may give them the attention they deserve.

In the forthcoming volume of our JOURNAL, (1877) it is our purpose to continue our notice of the remaining volumes of Ziemssen's Hand-book, which relate to the nervous system.